

823-1
7. A multi-wavelength source according to Claim 1, wherein the periodic bandpass filter is tuned to an ITU frequency grid to form a standard multi-wavelength laser source.

8. A method of generating a multi-wavelength laser signal comprising:

operating an optical gain medium with a feedback input and a pump laser source, and no other input;

feeding back a portion of an output of the optical gain medium through a periodic bandpass filter, and passing an output of the periodic bandpass filter to the feedback input;

whereby a lasing source is realized in at least two bands of the periodic bandpass filter such that a laser signal having at least two wavelengths is generated.

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 1-8 are pending in the application. Claims 1, 3, and 8 are independent.

Applicants have added new Claims 3-8 to afford themselves a scope of protection commensurate with the

disclosure. The new claims are fully supported in the specification and Drawings, and are believed to be allowable for the reasons to be developed below.

Drawings

Formal drawings will be filed upon allowance.

35 U.S.C 102 Rejections

Claim 1 was rejected under 35 U.S.C. 102(b) as being anticipated by Toyohara et al, (US patent 6,106,848) hereinafter simply "Toyohara". The Office Action states that Toyohara discloses WDM transmitter comprising pump laser source (11), an optical amplifier (21 respectively connected with output ports of said plural light sources, an optical bandpass filter (42). However, Toyohara's system requires a respective light source and a respective pumping laser diode for each wavelength (See Figures 2A,2B), and the elaborate arrangement of Figure 4 is provided to equalize the powers of the various wavelengths. The elaborate arrangement includes a single wideband optical bandpass filter 42 after which optical electrical conversion occurs and a feedback signal is generated.

With respect, Applicants submit that this is not what is being claimed in Applicants' Claim 1. Applicants' Claim

1 does not require multiple light sources, each at a respective wavelength. In fact, Applicants' Claim 1 does not require a light source at all, although a pump laser source is required. Applicants' Claim 1 is to a light source per se. Instead, the single pump laser source pumps the optical gain module. A periodic band-pass filter is provided in a feedback loop between the input and output of the optical gain module. A periodic bandpass filter has a periodic filter response over a frequency range of interest, and this forces the gain module 10 to concentrate its energy in specific frequency (wavelength) bands and consequently to lase in those bands. The effect of providing a periodic band-pass filter in the feedback loop is that at the output of the optical gain module, an optical signal having multiple wavelengths is generated, with no requirement for a corresponding collection of light sources. There is no such periodic band pass filter in Toyohara, and as such, with respect, Claim 1 cannot be anticipated by Toyohara.

35 USC 103(a) Rejection

Claim 2 was rejected as being unpatentable over Toyohara, in view of Sun et al (US patent no. 6,341,034; "Sun").

Claim 2 depends upon Claim 1 which as indicated above should be allowable, and as such Claim 2 should also be allowable.

New Claims

New Claims 3-8 simply further define the scope of the invention to which Applicants are entitled. These new claims are fully supported by the description as originally filed.

Specifically:

an example of a coupler at the output of the OGM (recited in new Claim 3) adapted to send part of the OGM output to the periodic band-pass filter, and part of the output of the OGM as the output of the multi-wavelength laser can be seen in element 11 of Figures 2 and 6 and associated description;

an example of a coupler at the input of the OGM (recited in new Claim 3) adapted to couple both a pump signal from the pump laser source, and an output of the periodic band-pass filter into the OGM, the OGM having no other optical input signal can be seen in element 13 of Figures 2 and 6 and associated description;

an example of where the periodic bandpass filter is said to comprise a Mach-Zehnder interferometer (recited in new Claim 4) is found in element 12 of Figures 2 and 6 and associated description;

an example of where at least two lasing sources are realized in different bands of said periodic band-pass filter (recited in new Claim 5) is found in the examples of Figures 4 and 5 and associated description;

polarization control means in the feedback loop to enhance effective feedback of signals in periodic bands of the periodic band-pass filter (recited in new Claim 6) finds support in the description on page 5 line 17; and

the periodic bandpass filter being tuned to an ITU frequency grid to form a standard multi-wavelength laser source (recited in new Claim 7) finds support in the description on page 5 last sentence.

In view of the above amendments and remarks, it is believed that this application is now in condition for allowance, and a Notice thereof is respectfully requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3500. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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